

ABSTRACT OF THE DISCLOSURE

An LED-based color measurement instrument including an illumination system and a sensing system. The illumination system includes modulated LEDs and a temperature control system for regulating the temperature of the LEDs, thereby improving the consistency of 5 their performance. The sensing system includes a photodiode, a transimpedance amplifier, and an integrator in the first stage to cancel the effect of ambient light on the output of the first stage. The sensing system also includes a lens system for imaging a target area of the target sample onto the photo sensor in a manner so that the product of the target area times the solid angle captured by the lens system is generally uniform over a selected range of distances, thereby 10 reducing the positional sensitivity of the instrument with respect to the target sample.

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